Middle Gila Watershed

Watershed Description

This watershed encompasses the Gila River drainage area below Coolidge Dam (San Carlos Reservoir) in the east to Painted Rock Dam in the west. It excludes the Santa Cruz River, the San Pedro River, and the Salt River drainage above Granite Reef Dam. The Salt River drainage area below Granite Reef Dam is included in this watershed (instead of the Salt Watershed) because the canals and diversions at the dam hydrologically disconnect the system from the rest of the Salt drainage.

The Phoenix metropolitan area, located in this 12,250 square mile watershed, consists of more than three million people (2000 census) and continues to be one of the fastest growing areas in the United States. Land ownership in the Middle Gila is approximately: 65% federal land, 25% private land, 4% state land, and 4% tribal land. Within the metropolitan area, irrigated agriculture uses are rapidly being displaced by urbanization. Outside the urbanized area, livestock grazing is the primary land use. Mining (primarily now abandoned) has occurred across this watershed, with more concentration south of Prescott.

Elevations range from 7,400 feet (above sea level) to 1,100 feet at Painted Rocks Reservoir. Most of the watershed is below 5,000 feet in elevation, with Sonoran Desert flora and fauna and warmwater aquatic communities.

Water Resources

This area receives little rainfall (approximately 13 inches a year); therefore, surface water flow is primarily attributed to releases from upstream impoundments, effluent from wastewater treatment plants, and agricultural return flows.

An estimate of surface water resources in the Middle Gila Watershed is provided in **Table X.** Waters on Indian lands are not assessed by ADEQ; therefore, those statistics are shown separately.

Table X. Estimated Surface Water Resources in the Middle Gila Watershed

Excluding Indian Lands

	Perennial	Intermittent	Ephemeral
Stream miles	165	1,210	5,460
	Perennial	Non-perennial	
Lake acres	10,320	6,830	

On Indian Lands – Not Assessed

	Perennial	Intermittent	Ephemeral
Stream miles On Indian Lands	0	10	1,105
	Perennial	Non-perennial	
Lake acres On Indian Lands	240	0	

Ambient monitoring focuses on perennial waters; however, special investigations may identify water quality problems on intermittent and even ephemeral waters. Estimated miles and acres are based on USGS digitized hydrology at 1:100,000 and have been rounded to the nearest 5 miles or 5 acres.

Map of watershed showing:

Generalized topography
Highways
Cities
National Forests, Monuments, Refuges
HUCs (the subdivisions by number)

Watershed Partnerships

- Tres Rios River Management Group

The area of interest is delineated approximately by the Salt River and Gila River drainage in the Phoenix Metropolitan area between Southern (north), Baseline (south), 83rd Avenue (east) and Agua Fria River (west).This group works on water issues such as pollutants, flood flows, agriculture stormwater runoff, agriculture irrigation and dewatering, concentrated animal feeding operation discharges, wastewater treatment plant discharges, landfill leachate, ground water inflow, sand and gravel area releases, and degradation of wildlife habitat. There are quarterly meetings at the Flood Control District offices in Phoenix. Contact Debbi Radford, City of Phoenix at (602) 262-1828 or debbi.radford@phoenix.gov.

- Upper Agua Fria Watershed Partnership

The area of interest is the Agua Fria River drainage, excluding the area in the Prescott Active Management Area (AMA) or the Phoenix AMA. This group works on water quality and quantity issues such as growth, ranching and grazing, leaking underground storage tanks, illegal dumping, and water rights. They meet at Arcosanti on the 1st Tuesday of the month. For more information, contact Mary Hoadley at (928) 632-7135 or earthhous@aol.com.

- Southwest Strategy Water Task Team

A pilot project is located on the Upper Agua Fria drainage area. Federal, tribal, state, and local entities are identifying and prioritizing water resource concerns in this area to provide coordinated and effective actions. Meetings occur as needed. Contact Mary Reece, (602) 206-3884 or mreece @lc.usbr.gov.

Special Studies and Water Quality Improvement Projects

The following studies and water quality improvement projects have occurred in the Middle Gila Watershed during the last 5 years.

Total Maximum Daily Load Analyses – The following TMDL analyses have been completed, are ongoing, or are scheduled to be completed in this watershed. Further information about the status of these investigations or a copy of the TMDL, if completed, can be obtained at ADEQ's website: www.azdeq.gov.

- Alvord Park Lake in south Phoenix is impaired due to ammonia.
  Elevated ammonia may represent a risk to aquatic life. This lake is an important urban recreational area. The TMDL investigation is scheduled to be initiated in 2007.

- Chaparral Lake in Scottsdale is impaired due to low dissolved oxygen and bacteria (*Escherichia coli*).
  Swimming or wading in the lake is prohibited; therefore, public health risk due to the presence of *E. coli* is reduced. Low dissolved oxygen may pose problems for aquatic life. Both low dissolved oxygen and high *E. coli* are likely related to ducks and other wildlife that congregate at this lake. Both TMDLs are scheduled to be initiated in 2007.

- Cortez Park Lake in Phoenix is impaired due to low dissolved oxygen and high pH
  Low dissolved oxygen and high pH are frequently associated with excess nutrient loadings and eutrophic conditions which may lead to algal blooms and even fish kills. The narrative nutrient implementation guidance being developed by ADEQ may be used in developing these TMDLs as numeric nutrient standards have not been established. Both TMDLs are scheduled to be initiated in 2007.

- French Gulch, a tributary to the Hassayampa River near Walnut Grove, is impaired due to cadmium, copper, and zinc.
  Metal concentrations may represent a risk to aquatic and wildlife communities. TMDLs were completed and for this stream in 2005 and identified the Zonia Mine as the primary source of these

pollutants, although natural background and other inactive and abandoned mine workings may also be contributing loads. Currently the mine is operating three production wells to draw down the ground water table and reduce metal loading to the surface water from the ground water. ADEQ will be working with the owners of Zonia Mine and other stakeholders to develop and implement management measures to further reduce loadings and pollutant risks to the environment.

- Hassayampa River is impaired due to cadmium, copper and zinc.
  Metal concentrations may pose a risk to aquatic and wildlife communities. TMDLs were approved in 2002. Several abandoned mine tailings were identified as primary sources of these contaminants including: McCleur tailings, Senator Gold Mine adit and tailings, and the Wetland tailings. The U.S. Forest Service has initiated several remediation projects, and ADEQ is working with interested stakeholders to prepare a TMDL Implementation Plan to identify other actions and watershed management measures.

- Several reaches of the Gila River, Painted Rocks Reservoir, and the Salt River and the Hassayamapa River reaches that flow into the Gila River are all impaired by pesticides in fish tissue – specifically, DDT metabolites, toxaphene, and chlordane. (See also Painted Rocks Borrow Pit in the Colorado – Lower Gila Watershed.)
  Although these pesticides have been banned from use for at least 20 years, these pesticides remain at concentrations that may pose a high risk to aquatic life and species that prey on them, including humans who may eat the fish. Fish consumption advisories have been set for these waters for more than 10 years. This is a complex TMDL due to the size of the drainage and vast area where these pesticides were historically applied.

- Mineral Creek, at tributary to the Gila River near Kelvin, is impaired due to copper and selenium.
  Both copper and selenium concentrations may pose a risk to aquatic life and wildlife. Recent remediation efforts have been effective in mitigated copper contamination, as exceedances only occur during extreme flow events; however, those methods have not reduced the selenium loads.

- Queen Creek near Superior is impaired due to copper.
  Copper concentrations may pose a risk to aquatic life and wildlife. A TMDL was initiated in 2005 and is scheduled to be completed in 2007.

- Turkey Creek, a tributary to the Agua Fria, is impaired due to copper and lead. Metals concentrations may represent a risk to aquatic life and wildlife. TMDLs, anticipated to be completed in 2006, indicate that the primary sources of metals are inactive and abandoned mines, such as Golden Turkey Mine and Golden Belt Mine. ADEQ has been coordinating with the U.S. Forest Service in identifying remediation actions for mines on Forest Service land. ADEQ has been working with stakeholders to identify and implement strategies or actions that would bring Turkey Creek back into compliance with its standards.

Water Quality Improvement Grant Projects – ADEQ awarded the following Water Quality Improvement Grants (319 Grants) in this watershed. More information concerning these grants or projects can be obtained at: http://www.azdeq.gov/environ/water/watershed/fin.html.

- **Bar S Ranch Septic System Project**
  Bar S Ranch (2001)
  Replace a failing septic system to protect Chicken Springs Wash, at Mingus Mountain.

- **Algal Bioreactor Filtration Project**
  Universal Entech, LLC (2002)
  Develop and demonstrate an algal biological filtration system to treat agricultural runoff waters from irrigation drainage ditches prior to entering the Gila River. The goal was to reduce nutrient loading (including Painted Rocks Borrow Pit downstream).

- **Upper Hassayampa River Watershed Restoration Project**
  Maughan Ranches (2003)
  Exclude cattle from riparian areas along the Hassayampa River (from Milk Creek to Hassayampa River Canyon Wilderness Area) in an effort to increase riparian vegetation, stabilize soil, and reduce sediment.

- **Upper Agua Fria Wildcat Dumpsite Cleanup Project**
  Upper Agua Fria Watershed Partnership (2004)
  Clean up illegal dump sites along Big Bug Creek, a tributary to the Agua Fria River. Sites were located along Big Bug Creek between Cordes Junction and Mayer.

- **Gibson Mine Remediation Project**
  Franciscan Friars of California (2005 and 2006)
  Design, construct, and implement a manmade wetland to reduce copper, beryllium, zinc, and turbidity loadings to Pinto Creek and Mineral Creek.

Water Protection Fund Projects – The following Water Protection Fund Projects were awarded by the Arizona Department of Water Resources. More information about these funds or projects can be obtained from the ADWR web site at: http//www.azwater.gov.

- **Tres Alamos Ranch Tank Rehabilitation Project**
  Tres Alamos Ranch (2000)
  Exclude grazing from 35 acres near Wickenburg, decommission three cattle tanks (replanting the dirt tanks area with native plants), and replace dirt tanks at 2 other sites with cattle drinkers.

- **Papago Park Green Line Project**
  The city of Tempe and the Arizona Historical Society (2000)
  Obtain water rights to sustain a riparian area. The project would also restore and regenerate riparian health and provide educational opportunities for the public.

- **Lynx Creek Restoration Project**
  Prescott National Forest (2003)
  Restore a segment of Lynx Creek, including two wetland areas.

U.S. Army Corps of Engineers' Ecosystem Restoration Projects – Ecosystem restoration, environmental stewardship, and radioactive site cleanup projects are funded through the annual federal Energy and Water budget. The purpose of ecosystem restoration is to re-establish attributes of a natural functioning and self-regulating system.

- **Va Shly 'ay Akimel**
  Restore riparian ecosystem using native vegetation along the Salt River between Granite Reef Dam to the Interstate 101 Bridge (14 miles and 17,435 acres). The project will establish a functional floodplain in the unconstrained reaches. To provide passive recreational opportunities, improved habitat, and provide educational opportunities.

- **Rio Salado – Tempe Reach**
  Restore threatened and endangered species habitat by planting mesquite, cottonwood-willow, wetland, strand scrub, and open edge habitat along the Salt River between McClintock Avenue and Priest Drive, and from McKellips road to Tempe Town Lake.

- **Rio Salado – Phoenix Reach**
  Restore riparian habitat along the Salt River from Interstate 10 Bridge to 19th Avenue (5 miles and 580 acres). A series of shallow pools will be connected by a perennially flowing stream. Three parking areas will be added for public access to the restored area.

- **Rio Salado Oeste**
  The objective is to increase the functional riparian along the Salt River, between 19th Avenue and 83rd Avenue. To attract wetland and riparian avian species, and establish the presence of amphibians, reptiles, mammals and birds, while suppressing undesirable fish and wildlife speices and invasive plants. The project is to increase passive recreational and educational opportunities and reduce flood damage.

- **Tres Rios**
  Provide sustainable and diverse native riparian habitat in the Tres Rios area, which is along the Salt River and Gila River from 83rd Avenue to the Agua Fria River (9.2 miles and 5,600 acres). The project should also reduce flood damages and increase environmental education and recreation opportunities.

- **Tres Rios del Norte**
  This project is located along the Santa Cruz River between Prince Road to Sanders Road, West Moore Road and West Avra Valley Road. It will restore 19 miles of wetland and riparian vegetative communities along the Santa Cruz River and its adjacent floodplains. The restoration would vastly improve mesquite, cottonwood-willow, and emergent wetland habitats to a condition supportive of wildlife, and for the benefit of residents and visitors to the area.

Other Water Quality Studies

- **Phoenix Metropolitan Reservoir Study**
  David Walker, University of Arizona
  This is an ongoing and comprehensive study of water quality in reservoirs serving the Phoenix metropolitan area. Goal is to collect and analyze data to answer water quality management questions in a proactive manner. A yearly report is produced. In 2005, the report provided information about: climate and drought effects on water quality, wildfire effects on water quality, harmful algal blooms, atmospheric deposition and the use of sediment to look at accumulation of pollutants, and endocrine disruption compounds.

- ***Hydrologic Characteristics of the Agua Fria National Monument, Central Arizona, Determined from the Reconnaissance Study***
  John B. Fleming, U.S. Geological Survey, in cooperation with the Bureau of Land Management
  A characterization of the hydrologic conditions in the newly created Agua Fria National Monument based on existing hydrologic and geologic information and stream flow data collected in 2002.

- **Tres Rios Constructed Wetlands Project**
  City of Phoenix and Corps of Engineers
  The Tres Rios Constructed Wetlands demonstrates the practicality and usefulness of constructed wetlands in reclaiming wastewater effluent while establishing wildlife habitat in arid regions.

- ***Determination of Channel Change for Selected Streams, Maricopa County, Arizona***
  Joseph P. Capesium and Ted W. Leham – U.S. Geological Survey in cooperation with the Flood Control District of Maricopa County (2002)
  Alluvial stream channels in arid regions are dynamic and channel changes can occur over short time periods, ranging from hours to weeks. A channel can scour during higher discharges and fill during lower discharges, causing short-term changes. In Maricopa County, 10 sites on seven streams were studied to determine the lateral and vertical change of channel. All channels showed some change in cross-section area or hydraulic radius, but the direction and magnitude of change varied considerably – some are more dynamic than others. Long-term channel change (years to decades) was also studied as this would have more effect on potential flood-hazards. Three sites appeared to have substantial long-term channel change.

- ***Reconnaissance of the Upper Aqua Fria Watershed and Hydrologic Analysis***
  Loyd O. Barnett, Richard H. Hawkins, and D. Phillip Guertin, School of Renewable Natural Resources, University of Arizona, in cooperation with the Upper Agua Fria Watershed Partnership
  This report provides a description of the watershed characteristics, including hydrology and watershed issues. The report primarily focuses on water quantity and water rights, with a brief summary of water quality concerns. The report established strategies to address the water budget, water rights, watershed health, and water quality concerns.

- ***Status of Federal and State Listed Warm Water Fishes of the Gila River Basin, with Recommendations for Management***
  Desert Fishes Team Report Number 1 (2003)
  This report reviews the status of 12 federal and state listed native warm water fishes in the Gila River basin and the post 1967 recovery and conservation actions taken by all agencies, organizations, or parties.

- ***Assessment of Selected Inorganic Constituents in Streams in the Central Arizona Basins Study Area, Arizona and Northern Mexico, through 1998***
  David Anning – U.S. Geological Survey, National Water Quality Assessment Program (2003)
  Inorganic chemical data (dissolved solids, suspended sediment, and nutrients) and stream properties (temperature, pH, dissolved oxygen) were analyzed to assess water quality, determine natural and human factors affecting water quality, and compute stream loads.

Assessments

The Middle Gila Watershed can be separated into the following drainage areas (subwatersheds):

15050100 Gila – Queen Creek Drainage Area (from San Carlos Reservoir to Salt River)
15060106B Salt – Cave Creek Drainage Area (from Granite Reef Dam to Gila River)
15070101 Gila – Painted Rock Drainage Area (from Salt River to Painted Rock Dam)
15070102 Agua Fria River Drainage Area
15070103 Hassayampa River Drainage Area
15070104 Centennial River Drainage Area

These drainage areas and the surface waters assessed as “attaining” or “impaired” are illustrated on the following watershed map. Methods used to complete these assessments are described in the “Surface Water Assessment Methods and Technical Support” document (2006).

Assessment Map

AGUA FRIA RIVER From State Route 169 to Yarber Wash 15070102 – 031B 17.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining DWS – Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 11/26/2002 – 05/22/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below USGS gage #09512450 MGAFR109.37 101672	ADEQ Ambient	4 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc 4 total and 0-1 dissolved: Boron, lead, manganese, mercury	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Suspended sediment concentration 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limits for selenium and dissolved mercury	

AGUA FRIA RIVER From Sycamore Creek to Big Bug Creek 15070102 -- 023 9.1 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining DWS – Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 11/21/2001 – 09/20/2002		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below USGS gage #09512500 MGAFR087.06 100710	ADEQ Ambient	4 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc 4 total metals only: Boron, lead, manganese, mercury	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	3 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limit for selenium was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limits for selenium.	

AGUA FRIA RIVER From Little Squaw Creek to Cottonwood Creek 15070102 – 017 5.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining DWS -- Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 11/21/2001 – 09/20/2002		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Rock Springs USGS gage #09512800 MGAFR053.33 101304	ADEQ Ambient	4 total and dissolved metals: Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, and zinc 4 total metals only: Boron, lead, manganese, mercury	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	11/21/2001 – 1.7 mg/L 05/08/2002 – 4.1 mg/L	Attaining – Low dissolved oxygen due to groundwater upwelling and low flow. (Flow 0.01-0.05 cfs). Very low nutrient loads (0.03-0.1 mg/L nitrogen, 0.08-0.09 mg/L phosphorus).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limit for selenium was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use a lower lab detection limit for selenium.	

ALVORD LAKE 15060106B -- 0050 27 ACRES	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired PBC – Inconclusive FC – Inconclusive	Category 5 Impaired	Ammonia	Added ammonia to 303(d) List in 2004.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/21/2000 – 01/24/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Inflow MGALV-A 101040	AGFD Ambient	2 total and 3 dissolved: Cadmium, chromium, copper, lead, manganese, mercury and zinc 2 total and 0-2 dissolved metals: Antimony, arsenic, beryllium, boron, lead, and selenium	11-21 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	2 Fluoride 12 Total dissolved solids 6 Turbidity
Boat ramp MCALV-BR 102752	AGFD Ambient			
Mid lake MGALV-C 101042	AGFD Ambient			
Combined site A, B, C MCALV-ABC 101053	AGFD Ambient			
East basin MGALV-EAST 102562	AGFD Ambient			
West lagoon MBALV-WEST 102563	AGFD Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Ammonia	0.29 mg/L at 24.8 C, 8.9 SU 0.32 mg/L at 28.1 C, 8.7 SU 0.74 mg/L at 21.6 C, 8.3 SU A&Ww chronic	05/09/2001 – 0.33 mg/L 09/17/2002 – 1.09 mg/L 05/01/2003 – 1.33 mg/L	Remains impaired –3 exceedances during the assessment period.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient *E. coli* bacteria and mercury to assess FBC and FC		Lab detection limit for dissolved mercury is higher than A&W chronic criteria.
MONITORING RECOMMENDATIONS		High Priority – Collect ammonia samples to support development of ammonia TMDL. High ammonia may be a symptom of excess nutrient loading. New methods for implementing the narrative nutrient standard should be applied to this lake once adopted, to determine whether narrative nutrient violations are occurring. Use lower lab detection limit for dissolved mercury. Collect missing core parameters to represent at least 3 seasons during the assessment period.	

ARNETT CREEK From headwaters to Queen Creek 15050100 – 1818 11.1 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining	Category 1 Attaining	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 12/19/2001 – 08/03/2004 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Blue Springs MGARN007.64 103462	Resolution Copper Ambient	4-8 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc 4-8 total and 0-2 dissolved: Boron, lead, mercury, silver	4-6 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	6 *E. coli* bacteria 6 Fluoride 6 Total dissolved solids 6 Turbidity 1 Cyanide
Near Superior, AZ MCARN002.74 101306	ADEQ Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	08/26/2002 – 5.3 mg/L 05/07/2002 – 3.4 mg/L	Attaining – Low dissolved oxygen due to groundwater upwelling and low flow. (Flow 0.01 cfs)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limits for selenium and dissolved mercury.	

BLUE JOHN WASH From headwaters to unnamed tributary of Lynx Creek 15070102 -- 471 1.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 05/11/2001 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Upstream of unnamed tributary to Lynx Creek (Sheldon Mine wash) MGBLJ000.06 103409	Weston Inc Special inv for EPA	1 dissolved metal sample: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, thallium, and zinc	None	1 Fluoride 1 Total dissolved solids

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Zinc (dissolved)	3,599.4 µg/L at >400 mg/L hardness A&Wc acute	05/11/2001 – 5060 µg/L	Inconclusive – Only 1 exceedance.

Pollutant: Assume "total" concentration, unless shown as dissolved.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Zinc	Insufficient core parameters	Insufficient monitoring events	Lab detection limits for selenium and dissolved mercury were higher than A&Wc chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional zinc data due to the exceedance. Use lower lab detection limits for selenium and dissolved mercury. Collect core parameters to represent at least 3 seasons during an assessment period. (See also "Unnamed tributary to Lynx Creek" assessment)	

CASH MINE CREEK From headwaters to Hassayampa River 15070103 -- 349 1 Mile	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Wc – Impaired FBC – Inconclusive FC – Inconclusive	Category 4A Not attaining (Impaired)	Cadmium, copper, zinc	The Hassayampa River TMDL included loadings for cadmium, copper, and zinc from this tributary.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 05/10/2001; 03/04/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Near McCleur Tailings MGCSM000.34 102818	ADEQ TMDL and Westin, Inc Special Inv.	2 total and 3 dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, silver, and zinc 2 total and -0-2 dissolved: Barium, boron, manganese , mercury	2 Dissolved oxygen 2 pH	1 Fluoride 1 Total dissolved solids
Below road MGCSM000.29 100833	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	21.5 µg/L at 165 mg/L hardness 9.2 µg/L at 67 mg/L hardness A&Wc acute	05/10/2001 – 2820 µg/L 03/04/2005 – 1700 µg/L	Remains impaired – 2 exceedances in last 3 years of monitoring. Also considered the magnitude of the values and the mining sources in the area.
pH	>6.5 SU A&Wc, FBC	03/04/2005 – 5.8 µg/L	Inconclusive – 1 of 2 samples did not meet the criteria (binomial).
Lead (dissolved)	4.7 µg/L at 165 mg/L hardness A&Wc chronic	05/10/2001 – 7.1 µg/L	Inconclusive – 1 exceedance during the assessment period.
Zinc (dissolved)	193 µg/L at 165 mg/L hardness 83.5 µg/L at 67 mg/L hardness A&Wc acute	05/10/2001 – 256 µg/L 03/04/2005 – 120 µg/L	Remains impaired – 2 exceedances in the last 3 years of monitoring.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead and pH	Insufficient dissolved oxygen, *E. coli* bacteria, and mercury to assess A&Wc, FBC, and FC.	Insufficient monitoring events	Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect cadmium, copper, zinc, and pH data to evaluate the effectiveness of TMDL implementation strategies after they have been implemented. Samples collected should represent critical conditions – conditions in which exceedances are most likely to occur. Collect additional lead samples due to the exceedance. Collect additional core parameters to represent at least 3 seasons. Use lower lab detection limits for selenium and dissolved mercury.	

UNNAMED TRIBUTARY TO CASH MINE CREEK From headwaters to Cash Mine Creek 15070103 -- 415 1 Mile	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Wc – Impaired FBC – Inconclusive FC – Inconclusive	Category 4A Not attaining (Impaired)	Cadmium, copper, zinc	The Hassayampa River TMDL included loadings for cadmium, copper, and zinc from this tributary.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 05/10/2001; and 03/04/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above adit & McCleur tailings MGUCM000.27 103357	Westin, Inc Special Inv.	4-5 total and dissolved metals: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, manganese, nickel, silver, thallium, and zinc 1 total and dissolved: Boron 1 Selenium (Only 2 sampling events)	2 Dissolved oxygen 2 pH	4 Fluoride 4 Total dissolved solids
At adit & above McCleur tailings MGUCM000.25 103358	Westin, Inc Special Inv.			
Below adit & above McCleur tailings MGUCM000.22 103359	Westin, Inc Special Inv.			
Above McCleur tailings MGUCM000.13 102816	ADEQ TMDL			
At base of McCleur tailings MGUCM000.09 103352	Westin, Inc Special Inv.			
Below McCleur tailings MGUCM000.01 102817	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Beryllium	5.3 µg/L A&Wc chronic	05/10/2001 – 6.2 µg/L	Inconclusive – Only 1 exceedance in the last 3 years of monitoring.
Cadmium (dissolved)	5.7 µg/L at 130 mg/L hardness 2.9 µg/L at 70 mg/L hardness A&Wc acute	05/10/2001 – 82.1 µg/L 03/04/2005 – 13.0 µg/L	Remains impaired – 2 exceedances in the last 3 years of monitoring.
Copper (dissolved)	17.2 µg/L at 130 mg/L hardness 9.6 µg/L at 70 mg/L hardness A&Wc acute	05/10/2001 – 1080 µg/L 03/04/2005 – 150 µg/L	Remains impaired – 2 exceedances in last 3 years of monitoring.
Lead	15 µg/L FBC	05/10/2001 – 60.6 µg/L	Inconclusive – Only 1 exceedance in 2 samples. (Binomial)
Lead (dissolved)	3.3 µg/L at 130 mg/L hardness A&Wc chronic	05/10/2001 – 60.6 µg/L	Inconclusive – Only 1 exceedance in the last 3 years of monitoring.
pH	>6.5 SU A&Wc, FBC	03/04/2005 – 5.4 SU	Inconclusive –Did not meet standard when measured – only 1 measurement taken. (Binomial)
Selenium	2.0 µg/L A&Wc chronic	05/10/2001 – 3.7 µg/L	Inconclusive – Exceeded in only 1 sample during the last 3 years of monitoring.
Zinc (dissolved)	156 µg/L at 130 mg/L hardness 86.6 µg/L at 70 mg/L hardness A&Wc acute	05/10/2001 – 7590 µg/L 03/04/2005 – 1400 µg/L	Remains impaired – 2 exceedances in the last 3 years of monitoring.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	**MISSING CORE PARAMETERS**	**MISSING SEASONAL DISTRIBUTION**	**DETECTION LIMITS NOT LOW ENOUGH**
Beryllium, lead, pH, and selenium	Insufficient dissolved oxygen and *E. coli* bacteria to assess attainment of A&W or FBC.	Insufficient monitoring events	Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional cadmium, copper, zinc, and pH data to evaluate the effectiveness of TMDL implementation strategies after they have been implemented. Collect these samples during critical conditions – when exceedances are most likely to occur. Collect additional beryllium, lead, and selenium samples due to exceedances. Collect additional core parameters to represent at least 3 seasons. Use lower lab detection limits for selenium and dissolved mercury.	

CAVE CREEK From headwaters to Cave Creek Dam 15060106B– 026A 32.9 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 12/17/2001 – 02/05/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Seven Springs MGCVE037.68 100527	ADEQ Ambient	5-8 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc 4-8 total and 0-2 dissolved: Boron, lead, manganese, mercury	8 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	8 *E. coli* bacteria 8 Fluoride 8 Total dissolved solids 1 Suspended sediment concentration 8 Turbidity
Below Maricopa Mine tailings MCCVE025.98 101305	ADEQ Ambient			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limit for selenium was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limits for selenium.	

CHAPARRAL PARK LAKE 15060106B – 0300 12 Acres	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired PBC – Impaired FC – Inconclusive AgI – Inconclusive	Category 5 Impaired	*E. coli* bacteria and low dissolved oxygen	*E. coli* bacteria and low dissolved oxygen were added to 303(d) list in 2004.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 05/09/2001 – 10/31/2003 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At dam MGCHA-A 101045	ADEQ Ambient	2 total and 3 dissolved: Barium, cadmium, chromium, copper, lead, manganese, mercury, nickel, zinc 2 total and 0-2 dissolved: Antimony, arsenic, beryllium, boron, selenium, and silver	7 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	2 Fluoride 5 Total dissolved solids 1 Turbidity
Mid Lake MGCHA-B 101046	ADEQ Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient dissolved oxygen, *E. coli* bacteria, manganese, boron and mercury to assess uses.		Lab detection limit for dissolved mercury was higher than A&Ww chronic criteria.
DISSOLVED OXYGEN AND PH IMPAIRMENT		Insufficient data to affect impairment decisions. No bacteria data. Delisting dissolved oxygen would require at least 10 samples, some of which were collected during critical conditions.	
MONITORING RECOMMENDATIONS		High Priority – Collect dissolved oxygen and *E. coli* bacteria to support development of TMDLs. Low dissolved oxygen may be an indication of excess nutrient loading. New methods for implementing the narrative nutrient standard should be applied to this lake once adopted, to determine whether narrative nutrient violations are occurring. Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for dissolved mercury.	

CORTEZ PARK LAKE 15060106B – 0410 2 Acres	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired PBC – Impaired FC – Inconclusive Agl – Impaired	Category 5 Impaired	High pH and low dissolved oxygen	High pH and low dissolved oxygen were added to 303(d) list in 2004.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 05/14/2001 – 09/24/2004 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At dam MGCOR - A 101043	ADEQ Ambient	2 total and 2 dissolved: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, zinc	3 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	2 *E. coli* bacteria 2 Fluoride 2 Total dissolved solids 2 Turbidity
Mid Lake MGCOR - B 101044	AGFD Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limit for dissolved mercury was higher than A&Ww chronic criteria.

MONITORING RECOMMENDATIONS	
	High Priority – Collect dissolved oxygen and pH samples to support development of TMDLs. Low dissolved oxygen and high pH may be symptoms of excess nutrient loading. New methods for implementing the narrative nutrient standard should be applied to this lake once adopted, to determine whether narrative nutrient violations are occurring. Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for dissolved mercury.

ENCANTO PARK LAKE 15060106B– 0510 8 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive PBC – Inconclusive FC – Inconclusive AgI – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 07/23/2002 – 10/01/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Mid lake MGENC - B 102757	ADEQ Ambient	1dissolved only: Cadmium, chromium, copper, lead, manganese, mercury, and zinc	2 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen	2 Total dissolved solids

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limits for selenium and dissolved mercury were higher than A&Ww.
MONITORING RECOMMENDATIONS		Low Priority – Collect missing core parameters to represent at least 3 seasons during the assessment period. Use lower lab detection limits for selenium and dissolved mercury.	

FAIN LAKE 15070102 -- 0005 1015 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Attaining FC – Inconclusive	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 08/29/2002 – 06/09/2004		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At dam MGFAI-A 101400	ADEQ Ambient	2 total and 2 dissolved: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, and zinc	2-3 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	3 *E. coli* bacteria 2 Fluoride 3 Total dissolved solids 2 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	08/29/2002 – 4.3	Inconclusive – Only 1 exceedance in 3 sampling events (binomial).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Dissolved oxygen	Insufficient dissolved copper, cadmium, mercury, and zinc to assess A&Ww and FC.	Samples only represent 1 season (June and August).	Lab detection limit for dissolved mercury was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority – Collect dissolved oxygen data because criterion was not met. Low dissolved oxygen may be a symptom of excess nutrient loading. New methods for implementing the narrative nutrient standard should be applied to this lake once adopted, to determine whether narrative nutrient violations are occurring. Collect missing core parameters to represent at least 3 seasons during the assessment period. Use lower lab detection limits for dissolved mercury.	

FRENCH GULCH From headwaters to Hassayampa River 15070103 -- 239 9.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired FBC – Inconclusive FC – Attaining	Category 4A Not attaining (Impaired)	Cadmium, copper, and zinc	TMDL completed and approved in 2004 for cadmium, copper, and zinc

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/29/2001 – 04/03/2004		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below headwaters MGFRG010.33 102234	ADEQ TMDL	36-45 total and dissolved: Cadmium, chromium, copper, and zinc 43 total and 4 dissolved: Manganese 36-38 total and 0-2 dissolved: Arsenic, boron, lead, mercury 3 total and dissolved: Beryllium 38 pH	19 Dissolved oxygen	None
Western trib above Zonia Mine MGFRG010.19 102085	ADEQ TMDL			
Above Zonia Mine MGFRG010.14 102088	ADEQ TMDL			
At headwaters MGFRG010.13 102086	ADEQ TMDL			
Above Zonia Mine MGFRG009.79 101619	ADEQ TMDL			
Below upper waste rock pile MGFRG009.59 102087	ADEQ TMDL			
Above Zonia Gulch MGFRG008.19 102235	ADEQ TMDL			
Below Zonia Gulch MGFRG008.09 101620	ADEQ TMDL			
Above Placerita Gulch MGFRG007.28 102242	ADEQ TMDL			
Above Placerita Gulch MGFRG007.06 101649	ADEQ TMDL			
Below Placerita Gulch MGFRG0006.95 101650	ADEQ TMDL			
Above Hassayampa River MGFRG000.19 102084	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Arsenic	50 µg/L FBC	11/12/2003 – 78 µg/L	Attaining – Only 1 exceedance in38 samples (binomial).
Cadmium (dissolved)	6.2 µg/L at >400 mg/L hardness A&Ww chronic	03/29/2001 – 9 mg/L 04/24/2001 – 8 mg/L 06/06/2001 – 9 mg/L	Remains impaired –3 exceedances of the chronic criteria during 3 consecutive months.
Copper	1300 µg/L – FBC	08/28/2003 – 2000 µg/L 11/12/2003 – 5500 µg/L	Attaining – Only 2 exceedances in 18 samples (binomial).
Copper (dissolved)	49.6 µg/L at >400 mg/L hardness 49.6 µg/L at >400 mg/L hardness 25.8 µg/L at 190 mg/L hardness 49.6 µg/L at >400 mg/L hardness 49.6 µg/L at >400 mg/L hardness 18.4 µg/L at 140 mg/L hardness 3.6 µg/L at 23 mg/L hardness 3.9 µg/L at 30 mg/L hardness 3.3 µg/L at 22 mg/L hardness 3.7 µg/L at 26 mg/L hardness A&Ww acute	03/29/2001 – 75 µg/L 04/24/2001 – 56 µg/L 02/26/2003 – 140 µg/L 03/04/2003 – 65 µg/L 08/28/2003 – 120 µg/L 11/12/2003 – 190 µg/L 12/26/2003 – 31 µg/L 02/23/2004 – 78 µg/L 03/13/2004 – 18 µg/L 04/03/2004 – 9.7 µg/L	Remains impaired – 10 exceedances total. 8 exceedances in the last 3 years of monitoring.
Dissolved oxygen	6.0 mg/L A&Ww	02/26/2003 – 5.1 mg/L 08/27/2003 – 5.2 mg/L	Attaining – One low dissolved oxygen value was due to low flow and ground water upwelling; therefore, only 1 sample did not meet criteria in 10 sampling events (binomial).
Lead	15 µg/L FBC	08/25/2003 – 90.2 µg/L 11/12/2005 – 340 µg/L	Attaining – Only 2 of 13 sampling events with an exceedance. (binomial)
Zinc (dissolved)	379 µg/L at >400 mg/L hardness 379 µg/L at >400 mg/L hardness A&Ww acute	06/06/2001 – 460 µg/L 10/11/2001 – 400 µg/L	Attaining – Although 2 exceedances in 2001, no exceedances in the last 3 years of monitoring. Note that ground water is being pumped and treated at Zonia Mine during this period.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient *E. coli* bacteria to assess FBC		Lab detection limits for dissolved metals (cadmium, copper, and zinc) were higher than A&W chronic criteria in at least 9 samples.
MONITORING RECOMMENDATIONS		Medium Priority –Collect cadmium, copper, and zinc samples to determine effectiveness of TMDL implementation strategies, once implemented. Collect samples during critical conditions – when exceedances are most likely to occur. Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower detection limits for dissolved metals.	

GILA RIVER From Dripping Springs Wash to San Pedro River 15050100 – 009 11.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 11/18/2002 – 05/21/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Dripping Springs Wash MGGLR343.27 101652	ADEQ Ambient	4 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc 4 total metals only: Boron, lead, manganese, mercury, nickel	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Suspended sediment concentration 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limit for selenium was higher than A&Wc chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limit for selenium.	

GILA RIVER From San Pedro River to Mineral Creek 15050100 – 008 19.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired FBC – Attaining FC – Attaining AgI – Attaining AgL – Attaining	Category 5 Impaired	Suspended sediment	Add suspended sediment to the 303(d) List.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 09/12/2001 – 08/10/2004 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Kelvin USGS #09474000 MGGLR313.73 100748	USGS Ambient	12-13 total and dissolved metals: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc	12-13 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	13 *E. coli* bacteria 13 Fluoride 13 Total dissolved solids 13 Suspended sediment concentration 12 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
E. coli bacteria	235 CFU/100 ml FBC	08/10/2004 – 300 CFU/100 ml	Inconclusive – Only one exceedance in past 3 years of data (1 of 13 samples).
Lead	15 µg/L FBC	09/09/2003 – 29 µg/L 08/10/2004 – 22.9 µg/L	Attaining – Only 2 exceedance in 13 samples. (Binomial)
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	12/05/2001 – 141 mg/L – 240 cfs 08/21/2002 – 173 mg/L – 8 cfs 03/26/2003 – 915 mg/L – 408 cfs* 09/09/2003 – 658 mg/L – 3.2 cfs 12/08/2003 – 161 mg/L – 0.2 cfs 03/23/2004 – 182 mg/L – 285 cfs 08/10/2004 – 956 mg/L – 31 cfs	Impaired – 7 of 13 samples exceeded the 80 mg/L criterion. One of the exceedances (*) was not included in the geometric mean calculation because the flow was above the 50th Percentile of flow (300 cfs). Using the remaining samples, the geometric mean exceeded 80 mg/L three times.
Selenium	2.0 µg/L A&Ww chronic	06/23/2003 – 3.0 mg/L	Inconclusive – Selenium exceeded the standard 1 time during the last 3 years of monitoring. Note exceedance occurred during low flow (0.2 cfs).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
E. coli bacteria and selenium	Collected all core parameters		Lab detection limit for dissolved mercury was higher than A&Wc chronic criteria.
MONITORING RECOMMENDATIONS		High Priority –Collect additional suspended sediment concentration data to support development of a TMDL. The old turbidity standard (50 NTU) was exceeded in 6 of 12 samples. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Collect additional selenium and *E. coli* bacteria samples due to exceedances. Use a lower lab detection limit for dissolved mercury.	

GILA RIVER From Salt River to Agua Fria River 15070101 -- 015 3.7 Miles		USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	ADEQ	A&Wedw – Attaining PBC – Attaining FC – Inconclusive AgI – Attaining AgL -- Attaining	Category 2 Attaining All Uses		
	EPA	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 11/20/2001 – 08/09/2002 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
Above El Mirage Road MGGLR204.04 101264	ADEQ Ambient	4 total and dissolved: Antimony, arsenic, beryllium, cadmium, chromium, copper, zinc 4 total metals only: Boron, lead, manganese, mercury	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Turbidity 2 Chlorine

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Pesticides in fish tissue	Collected all core parameters		Lab detection limit for selenium was higher than A&Wedw chronic criteria.
DISCUSSION OF PESTICIDE IMPAIRMENT		Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.	
MONITORING RECOMMENDATIONS		High Priority – Collect pesticides samples in fish tissue and water column to support development of TMDLs. Use a lower lab detection limit for selenium.	

GILA RIVER From Agua Fria River to Waterman Wash 15070101 -- 014 11.9 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Wedw – Inconclusive PBC – Inconclusive FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 3 Inconclusive		
	E P A	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 1/12/2005, 1/21/2005 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
At Estrella Parkway MGGLR199.33 101495	ADEQ Ambient	2 total and 2 dissolved: Antimony, arsenic, beryllium, cadmium, copper, lead, manganese, mercury, and zinc 2 total metals only: Boron and chromium	2 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	2 *E. coli* bacteria 2 Fluoride 2 Total dissolved solids 2 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Pesticides in fish tissue	Insufficient core parameters to assess designated uses	Insufficient monitoring events	Lab detection limits for dissolved mercury, dissolved lead, and total selenium were higher than A&Wedw chronic criteria.
DISCUSSION OF PESTICIDE IMPAIRMENT		Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.	
MONITORING RECOMMENDATIONS		High Priority – Collect pesticides to support development of TMDL development. Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for selenium, dissolved lead, and dissolved mercury.	

GILA RIVER From Waterman Wash to Hassayampa River 15070101 -- 010 13.9 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Wedw – Inconclusive PBC – Inconclusive FC – Inconclusive AgI -- Inconclusive AgL – Inconclusive	Category 3 Inconclusive		
	E P A	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT			
No Current Data			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

DATA GAPS AND MONITORING NEEDS	
DISCUSSION OF PESTICIDE IMPAIRMENT	Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.
MONITORING RECOMMENDATIONS	High Priority – Collect samples to support pesticide TMDL development.

GILA RIVER From Hassayampa River to Centennial Wash 15070101 -- 009 7 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Wedw – Inconclusive PBC – Inconclusive FC – Inconclusive AgI -- Inconclusive AgL – Inconclusive	Category 3 Inconclusive		
	E P A	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT			
No Current Data			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

DATA GAPS AND MONITORING NEEDS	
DISCUSSION OF PESTICIDE IMPAIRMENT	Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.
MONITORING RECOMMENDATIONS	High Priority – Collect samples to support pesticide TMDL development.

GILA RIVER From Centennial Wash to Gillespie Dam 15070101 -- 008 5.3 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	ADEQ	A&Wedw – Impaired PBC – Inconclusive FC – Attaining AgI -- Impaired AgL – Attaining	Category 5 Impaired	Boron and selenium in the water column	Boron on list since 1992. Selenium was added in 2004
	EPA	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/28/2000 – 05/19/2004 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above diversion at Gillespie Dam USGS #09518000 MGGLR167.44 100734	USGS Ambient	18 total and dissolved metals: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc	18 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	18 *E. coli* bacteria 18 Fluoride 18 Total dissolved solids 18 Suspended sediment concentration 18 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Boron	1000 µg/L AgI	ALL 18 SAMPLES EXCEEDED Concentrations ranged from 1700 µg/L to 3080 µg/L	Remains impaired – 18 exceedances in 18 samples.
			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue
E. coli bacteria	576 CFU/100 ml PBC	03/27/2003 -- >2675 CFU/100 ml	Inconclusive – 1 exceedance in the last 3 years of monitoring
Selenium	2.0 µg/L A&Wedw	14 exceedances (Too many to display) Concentrations ranged from <1 to 18 µg/L	Remains impaired – 14 of 18 samples exceeded the criterion. 8 of the measurements were 5.0 µg/L or higher.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
E. coli bacteria, pesticides in fish tissue	Collected all core parameters		
DISCUSSION OF PESTICIDE IMPAIRMENT		Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.	
MONITORING RECOMMENDATIONS		High Priority – Collect samples to support development of TMDLs for pesticides, boron, and selenium. Collect *E. coli* bacteria due to the exceedance.	

GILA RIVER From Gillespie Dam to Rainbow Wash 15070101 -- 007 5.1 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Wedw – Inconclusive PBC – Inconclusive FC – Inconclusive AgI -- Inconclusive AgL – Inconclusive	Category 3 Inconclusive		
	E P A	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT			
No Current Data			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

DATA GAPS AND MONITORING NEEDS	
DISCUSSION OF PESTICIDE IMPAIRMENT	Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.
MONITORING RECOMMENDATIONS	High Priority – Collect samples to support pesticide TMDL development.

GILA RIVER From Rainbow Wash to Sand Tank 15070101 -- 005 16.9 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Wedw – Inconclusive PBC – Inconclusive FC – Inconclusive AgI -- Inconclusive AgL – Inconclusive	Category 3 Inconclusive		
	E P A	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT			
No Current Data			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

DATA GAPS AND MONITORING NEEDS	
DISCUSSION OF PESTICIDE IMPAIRMENT	Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.
MONITORING RECOMMENDATIONS	High Priority – Collect samples to support pesticide TMDL development.

GILA RIVER From Sand Tank to Painted Rocks Reservoir 15070101 -- 001 18.7 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Wedw – Inconclusive PBC – Inconclusive FC – Inconclusive AgI -- Inconclusive AgL – Inconclusive	Category 3 Inconclusive		
	E P A	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT			
No Current Data			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

DATA GAPS AND MONITORING NEEDS	
DISCUSSION OF PESTICIDE IMPAIRMENT	Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.
MONITORING RECOMMENDATIONS	High Priority – Collect samples to support pesticide TMDL development.

HASSAYAMPA LAKE 15070103 -- 3160 2 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive DWS – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 05/08/2001 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Inlet MGHAS - C 103432	Westin, Inc Special Inv.	1 total and dissolved metals: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc 1 total metals only: Mercury	None	1 Fluoride 1 Total dissolved solids

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	9.6 µg/L at 70 mg/L hardness A&Wc acute	05/08/2001 – 14.4 µg/L	Inconclusive – 1 exceedance in a 3-year period
Lead	15 µg/L FBC	05/08/2001 – 25 µg/L	Inconclusive – Only sample exceeded the criteria.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper and lead	Insufficient core parameters	Insufficient monitoring events.	Lab detection limits for selenium, thallium, and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional copper and lead data due to the exceedances. Collect additional core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for selenium, thallium, and dissolved mercury.	

HASSAYAMPA RIVER From headwaters to Copper Creek 15070103 – 007A 11.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Wc – Impaired FBC – Impaired FC – Attaining AgI – Impaired AgL – Impaired	Category 5 (pH) Impaired Category 4A (Cadmium, copper, zinc) Not Attaining	Cadmium, copper, zinc, and pH	Add pH. TMDL completed and approved in 2002 for cadmium, copper, and zinc

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 09/27/2000 - 05/10/2001; 03/04/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Headwaters MGHSR115.34 101151	ADEQ TMDL	58-69 total and dissolved: Cadmium, copper, and zinc 3-7 total and dissolved: Antimony, arsenic, barium, beryllium, chromium, manganese, nickel, silver 1-2 total and 0-2 dissolved: Boron, selenium, thallium 6 total and 2 dissolved (2 dates): Mercury	62 pH 41 Dissolved oxygen 8 Nitrite/nitrogen 8 Total nitrogen 1 Total phosphorus	7 Fluoride 7 Total dissolved solids
Downstream of spring MGHSR114.54 101005	ADEQ TMDL			
Upstream of Wetland Mine MGHSR113.96 103435	Westin, Inc Special inv.			
At Wetland Mine MGHSR113.91 103436	Westin, Inc Special inv.			
Below Wetland Mine - Babble MGHSR113.86 100942	ADEQ TMDL			
Above Hassayampa Lake MGHSR113.60 103431	Westin, Inc Special inv.			
Above McCleur Mine tributary MGHSR113.17 101067	ADEQ TMDL			
At McCleur Mine tributary MGHSR 113.16 101066	ADEQ TMDL			
Below McCleur Mine tributary MGHSR113.15 101065	ADEQ TMDL			
Above Senator Mine MGHSR113.09 100465	ADEQ and Westin Special inv.			
At Senator Mine MGHSR113.01 101084	ADEQ TMDL			
Below Senator Mine MGHSR112.97 103355	Westin, Inc Special inv.			
Further below Senator Mine MGHSR112.91 100466	ADEQ TMDL			
At Whisper MGHSR111.40 100941	ADEQ TMDL			
At Jersey MGHSR108.19 101195	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	**STANDARD UNIT DESIGNATED USES**	**DATES EXCEEDANCES**	**DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS**
Cadmium	50 µg/L – AgI, AgL and 84 µg/L – FC	03/23/2001 – 157 µg/L 04/16/2001 – 56 µg/L	Attaining – Only 2 exceedances of the 50 µg/L criterion and only 1 exceedance of the 84 µg/L criterion in 12 samples (binomial)
Cadmium (dissolved)	14.1 µg/L at 322 mg/L hardness 13.2 µg/L at 284 mg/L hardness 13.7 µg/L at 294 mg/L hardness 19.1 µg/L at >400 mg/L hardness 7.1 µg/L at 161 mg/L hardness 19.1 µg/L at >400 mg/L hardness 19.1 µg/L at >400 mg/L hardness 19.1 µg/L at >400 mg/L hardness 19.1 µg/L at >400 mg/L hardness 19.1 µg/L at >400 mg/L hardness A&Wc acute	11/07/2000 – 28 µg/L 01/10/2001 – 35 µg/L 02/13/2001 – 37 µg/L 03/23/2001 – 161 µg/L 04/10/2001 – 23 µg/L 04/17/2001 – 52 µg/L 05/10/2001 – 22.9 µg/L 06/07/2001 – 45 µg/L 08/07/2001 – 38 µg/L 01/28/2002 – 28 µg/L	Remains impaired – 10 exceedances during the last 3 years of monitoring.
Copper	500 µg/L – AgL and 1300 µg/L – FBC	11/07/2000 – 4077 µg/L 01/10/2001 – 2455 µg/L 02/13/2001 – 2832 µg/L 03/23/2001 – 1670 µg/L 04/10/2001 – 2147 µg/L 06/07/2001 – 2062 µg/L 08/07/2001 – 1747 µg/L	Remains impaired – In 7 of 13 sampling events, the criteria were exceeded (binomial).
Copper (dissolved)	40.4 µg/L at 322 mg/L hardness 35.9 µg/L at 284 mg/L hardness 37.1 µg/L at 294 mg/L hardness 12.2 µg/L at 90 mg/L hardness 21.0 µg/L at 161 mg/L hardness 49.6 µg/L at >400 mg/L hardness 49.6 µg/L at >400 mg/L hardness 19.1 µg/L at >400 mg/L hardness 19.1 µg/L at >400 mg/L hardness A&Wc acute	11/07/2000 – 4077 µg/L 01/10/2001 – 2504 µg/L 02/13/2001 – 2830 µg/L 03/23/2001 – 1520 µg/L 04/10/2001 – 2174 µg/L 04/17/2001 – 110 µg/L 05/10/2001 – 112 µg/L 06/07/2001 – 1994 µg/L 08/07/2001 – 1730 µg/L	Remains impaired – 9 exceedances in the last 3 years monitored (13 sampling events).
Dissolved oxygen	6.0 mg/L A&Wc	09/27/2000 – 5.1 mg/L 11/07/2000 – 6.5 mg/L 03/23/2001 – 4.9 mg/L	Attaining – Low dissolved oxygen is due to naturally occurring conditions of low flow and ground water upwelling.
Lead	15 µg/L FBC	06/07/2001 – 16 µg/L	Inconclusive – Only 1 exceedance in 4 samples. (Binomial) Exceedance was only marginally over the criterion.
pH	>6.5 SU A&Wc, FBC, AgI, AgL	11/07/2000 – 3.4 SU 1/10/2001 – 3.6 SU 02/13/2001 – 4.0 SU 03/23/2001 – 4.1 SU 04/10/2001 – 3.8 SU 06/07/2001 – 3.4 SU 08/07/2001 – 3.9 SU	Impaired – Exceeded criterion in 21 of 59 samples (during 7 of 13 sampling events) (Binomial)
Selenium	2.0 µg/L A&Wc chronic	05/09/2001 – 3.6 SU	Inconclusive – Exceeded criterion only once during the assessment period. Lab reporting limit was higher than criterion for all other analyses.
Zinc	10,000 µg/L AgI	03/23/2001 – 15,300 µg/L	Attaining – Only 1 exceedance in 13 sampling events. (Binomial)
Zinc (dissolved)	291 µg/L at 293 mg/L hardness 332 µg/L at 342 mg/L hardness 316 µg/L at 322 mg/L hardness 379 µg/L at >400 mg/L hardness 379 µg/L at >400 mg/L hardness 379 µg/L at >400 mg/L hardness 175 µg/L at 161 mg/L hardness 379 µg/L at >400 mg/L hardness 379 µg/L at >400 mg/L hardness 379 µg/L at >400 mg/L hardness 379 µg/L at >400 mg/L hardness	02/10/2000 – 770 µg/L 09/26/2000 – 510 µg/L 11/07/2000 – 2280 µg/L 01/10/2001 – 3160 µg/L 02/13/2001 – 3500 µg/L 03/23/2001 – 13000 µg/L 04/10/2001 – 2080 µg/L 04/17/2001 – 5040 µg/L 05/10/2001 – 2040 µg/L 06/07/2001 – 5120 µg/L 08/07/2001 – 4400 µg/L	Remains impaired – Criteria were exceeded in 7 times during the last 3 years of monitoring (12 of 12 samples during the assessment period.)

	379 µg/L at >400 mg/L hardness 379 µg/L at >400 mg/L hardness A&Wc acute	01/28/2002 – 2680 µg/L 03/04/2005 – 2400 µg/L	

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	**MISSING CORE PARAMETERS**	**MISSING SEASONAL DISTRIBUTION**	**DETECTION LIMITS NOT LOW ENOUGH**
Lead, and selenium	Insufficient *E. coli* bacteria and boron to assess FBC and AgI.		Lab detection limits for selenium and dissolved metals (cadmium, copper, mercury) were higher than A&Ww chronic criteria in at least 6 samples.
MONITORING RECOMMENDATIONS		Medium Priority – Actions to reduce cadmium, copper, and zinc loadings to the stream will also correct pH; therefore, TMDL development is a low priority. Collect cadmium, copper, zinc, and pH samples to determine effectiveness of TMDL implementation strategies, once implemented. Collect samples during critical conditions when exceedances are likely to occur. Collect additional lead and selenium samples due to exceedances. Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for selenium and dissolved metals.	

HASSAYAMPA RIVER From Copper Creek to Blind Indian Creek 15070103 – 007B 20 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgI -- Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 02/02/2000 – 04/19/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Climax Mine MGHSR102.01 101196	ADEQ TMDL	8-42 total and dissolved: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, silver, thallium, and zinc 8-20 total and 0-1 dissolved: Boron, manganese	20-39 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, pH, and dissolved oxygen	18 *E. coli* bacteria 20 Fluoride 18 Total dissolved solids 10 Suspended sediment concentration 18 Turbidity
At intermittent site MGHSR095.83 101193	ADEQ TMDL			
At gaging station MGHSR092.07 100940	ADEQ TMDL			
Walnut Grove School MGHSR089.46 101004	ADEQ TMDL			
At Milk Creek MGHSR086.26 101128	ADEQ TMDL			
Below Milk Creek MGHSR085.79 100464	ADEQ Ambient			
At Blind Indian Creek MGHSR083.94 101003	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	9.9 µg/L at 72 mg/L hardness A&Ww acute	11/06/2000 – 84 µg/L	Attaining – No exceedances in the last 3 years of monitoring.
Dissolved oxygen	6.0 mg/L A&Ww	02/02/2000 – 4.8 mg/L 09/08/2000 – 5.8 mg/L	Attaining – Low dissolved oxygen levels are due natural conditions and ground water upwelling.
E. coli bacteria	235 CFU/100 ml FBC	06/04/2001 – 530 CFU/100 ml	Attaining – No exceedances in the last 3 years of monitoring.
Zinc (dissolved)	88.7 µg/L at 72 mg/L hardness A&Ww acute	11/06/2000 – 190 µg/L	Attaining – No exceedances in the last 3 years of monitoring.

Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
E. coli bacteria	Collected all core parameters		Lab detection limits for selenium and dissolved metals (cadmium, mercury) were higher than A&Ww chronic criteria in at least 11 samples.
MONITORING RECOMMENDATIONS		Medium Priority – Collect *E. coli* bacteria samples due to exceedance. Use lower lab detection limit for selenium and dissolved metals.	

HASSAYAMPA RIVER From Cottonwood Creek to Martinez Wash 15070103 – 004 32.1 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Inconclusive FC – Attaining AgI -- Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 02/11/2000 – 04/19/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At BLM gage, Box Canyon Dam MGHSR058.80 100463	ADEQ and USGS Ambient	16-24 total and dissolved: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, and zinc 8 total and dissolved: Barium, nickel, silver, thallium 8-20 total and 0-1 dissolved: Boron, manganese	21-22 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	21 *E. coli* bacteria 21 Fluoride 19 Total dissolved solids 11 Suspended sediment concentration 21 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
E. coli bacteria	235 CFU/100 ml FBC	02/17/2004 – 480 CFU/100 ml	Inconclusive – Only 1 exceedance in a 3 year period.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
E. coli bacteria	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria in at least 12 samples.
MONITORING RECOMMENDATIONS		Medium Priority – Collect *E. coli* bacteria samples due to exceedance. Use lower lab detection limit for selenium and dissolved mercury.	

HASSAYAMPA RIVER From Sols Wash to 8 miles below Wickenburg 15070103 – 002A 9.2 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Inconclusive FC – Attaining AgL -- Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 10/18/2001 – 04/05/2002 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Nature Conservancy MGHSR048.20 100462	ADEQ Ambient	3 total and dissolved: Antimony, arsenic, beryllium, cadmium, chromium, copper, zinc 3 total and 0-1 dissolved: Boron, lead, manganese, mercury 1 total and 1 dissolved: Barium, nickel, silver, thallium	3 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	3 *E. coli* bacteria 3 Fluoride 3 Total dissolved solids 3 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 µg/L A&Ww	10/18/2001 – 3.0 mg/L 01/17/2002 – 3.4 mg/L 04/05/2002 – 2.9 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. Flow at 0.1 cfs.
E. coli bacteria	235 CFU/100 ml FBC	04/05/2002 – 590 CFU/100 ml	Inconclusive – Only 1 exceedance in a 3 year period.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
E. coli bacteria	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority – Collect *E. coli* bacteria samples due to exceedance. Use lower lab detection limit for selenium and dissolved mercury.	

HASSAYAMPA RIVER From Buckeye Canal to Gila River 15070103 – 001B 2.3 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	ADEQ	A&Ww – Inconclusive FBC – Attaining FC – Attaining AgL -- Attaining	Category 2 Attaining Some Uses		
	EPA	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 11/01/2001 – 09/20/2002 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
Above Gila River MGHSR000.77 101197	ADEQ Ambient	4 total and dissolved: Antimony, arsenic, beryllium, cadmium, chromium, copper, zinc 4 total and 0-1 dissolved: Boron, lead, manganese, mercury 1 total and 0-1 dissolved: Barium, nickel, silver, selenium, thallium	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	3 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue
Selenium	2.0 µg/L A&Ww chronic	11/01/2001 – 5.4 µg/L	Inconclusive – Only 1 exceedance during the assessment period. (Lab detection limit problems on other samples – see below.)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Selenium, pesticides in fish tissue	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
DISCUSSION OF PESTICIDE IMPAIRMENT		Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.	
MONITORING RECOMMENDATIONS		High Priority – Collect pesticides to support development of pesticide TMDLs. Collect selenium samples due to exceedance. Use lower lab detection limit for selenium and dissolved mercury.	

INDIAN BEND WASH From headwaters to Salt River 15060106B -- 179 4.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/12/2005 – 01/21/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At 40th Street MGIBW014.04 101520	USGS Special study	4 total metals only: Cadmium, copper, lead, and zinc and mercury	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Lead	15 µg/L PBC	12/04/2001 – 25 µg/L 09/06/2002 – 38 µg/L 01/20/2003 – 25 µg/L	Inconclusive – 3 exceedances in 4 samples. (Binomial approach requires a minimum of 5 exceedances and 20 samples to assess as impaired.) (EPA may add this to the 303(d) List)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead	Insufficient dissolved cadmium, copper, zinc to assess A&We.		
MONITORING RECOMMENDATIONS		Medium Priority – Collect lead due to exceedances. Collect core parameters to represent at least 3 seasons during an assessment period.	

KEARNY LAKE 15050100 – 6666 8 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 06/15/2000 – 01/07/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Mid Lake MGKEA - B 102552	AGFD Ambient	3-9 total metals only: Arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury nickel, silver, and zinc	4-9 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	5 Fluoride 9 Total dissolved solids
Boat ramp MCKEA - BR 102550	AGFD Ambient			
At inflow MCKEA - IN 102551	AGFD Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient *E. coli* bacteria, dissolved cadmium, copper, and zinc and total mercury to assess FBC, A&W, and FC		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Collect core parameters to represent at least 3 seasons. Use lower lab detection limits for selenium and dissolved mercury.	

LAKE PLEASANT 15070102 -- 1100 8000 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining DWS – Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/14/2000 – 09/24/2004 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At dam MGPLE -- A 100067	ADEQ and U of A Ambient	15-23 total and 7-10 dissolved metals: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, and zinc	35-45 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	3 *E. coli* bacteria 31 Fluoride 20 Total dissolved solids 26 Turbidity 10-15 Benzene, ethylbenzene, toluene, xylene
Mid lake MGPLE – B 100068	ADEQ and U of A Ambient			
At riverine zone MGPLE – C 101708	ADEQ and U of A Ambient			
Castle Creek arm MGPLE - CSTL 102554	AGFD Ambient			
Agua Fria arm MGPLE – AGUA 102553	AGFD Ambient			
At marina MGPLE – MAR 101000	ADEQ and U of A Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	11/26/2003 – 5.4 mg/L 09/24/2004 – 4.6 mg/L	Attaining – 2 exceedances in 15 sampling events (9 of 39 samples). (Binomial)
pH	<6.5 SU A&Ww, FBC, AgL	09/05/2001 – 10.5 SU	Attaining – Only 1 exceedance in 15 sampling events (2 of 45 samples) (Binomial)
Selenium	2.0 µg/L A&Ww chronic	05/29/2001 – 3.0 µg/L	Attaining – No exceedances during the last three years.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria in at least 8 samples.
FISH TISSUE MONITORING		Preliminary results indicate that a fish consumption advisory for mercury may be issued based on edible fish tissue results exceeding 0.3 mg/kg. Results from a second round of monitoring are currently being analyzed.	
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limit for selenium and dissolved mercury.	

LITTLE ASH CREEK From headwaters to Ash Creek 15070102 -- 039 17.7 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive PBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 04/18/2002		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Near Estler Peak MGLAS004.52 100578	ADEQ Ambient	1 total and dissolved: Antimony, arsenic, beryllium, cadmium, chromium, copper, zinc 1 total metals only: Boron, lead, manganese, mercury	1 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	1 *E. coli* bacteria 1 Fluoride 1 Total dissolved solids 1 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters to assess designated uses	Insufficient monitoring events	Lab detection limit for selenium was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Collect missing core parameters to represent at least 3 seasons during an assessment period. Use a lower lab detection limit for dissolved mercury.	

LYNX LAKE 15070102 -- 0860 50 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Attaining FBC – Inconclusive FC – Attaining DWS -- Inconclusive AgI – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 04/25/2000 – 05/23/2002 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
At dam MGLYN - A 100037	ADEQ and AGFD Ambient Weston, Inc Special Inv.	3-6 total and dissolved metals: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, and zinc	3-7 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	1 *E. coli* bacteria 8 Fluoride 2 Total dissolved solids 6 Turbidity
Mid lake MGLYN – B 100038	ADEQ Ambient			
At Lynx Creek inlet MGLYN – C 100039	Weston, Inc Special Inv			
At boat ramp MGLYN – BR 101399	ADEQ and AGFD Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Lead	15 µg/L FBC	03/09/2001 – 53 µg/L	Inconclusive – 1 exceedance in 3 sampling events. (Binomial)
Manganese	980 µg/L DWS	04/25/2000 – 1073 µg/L 03/09/2001 – 2033 µg/L 04/29/2002 – 1280 µg/L 05/22/2002 – 2650 µg/L	Inconclusive – 4 exceedances in 5 sampling events. (Binomial requires a minimum of 5 exceedances and 20 samples to assess as impaired.) (EPA may add this to the 303(d) List.)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead and manganese	Insufficient *E. coli* bacteria to assess FBC		Lab detection limit for dissolved mercury was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional lead and manganese data due to the exceedances. Use lower lab detection limit for dissolved mercury.	

MARTINEZ CANYON From headwaters to Box Canyon 15050100 – 080 9.5 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Inconclusive FC – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 05/16/2002 – 05/27/2003 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Martinez Mine MGMZC006.18 101349	ADEQ Ambient	5 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc 5 total and 0-1 dissolved: Boron, lead, manganese, mercury	5 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	5 *E. coli* bacteria 5 Fluoride 5 Total dissolved solids 4 Suspended sediment concentration 5 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	05/16/2002 – 3.1 mg/L 11/20/2002 – 5.9 mg/L 03/26/2003 – 4.5 mg/L 05/27/2003 – 3.3 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. Flow between 0.01-0.05.
Lead	15 µg/L FBC	01/21/2003 – 25 mg/L 03/26/2003 – 40 mg/L	Inconclusive – 2 exceedances in 5 samples. (Binomial approach requires a minimum of 5 exceedances in 20 samples to assess as impaired.)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional lead data due to the exceedances. Use lower lab detection limits for selenium and dissolved mercury.	

MINERAL CREEK From Devil's Canyon to Gila River 15050100 – 012B 19.6 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired FBC – Inconclusive FC – Inconclusive AgL – Attaining	Category 5 (selenium, low DO) Category 4B (copper) Impaired	Selenium, copper, and low dissolved oxygen	Adding low dissolved oxygen. Added selenium in 2004. Mine under a consent decree to mitigate copper pollution.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 01/10/2000 – 06/17/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Indian Gardens MGMIN008.81 103331	ASARCO Effectiveness monitoring	217-218 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium silver, thallium, and zinc	218 samples: Nitrite/nitrate, pH, dissolved oxygen	217 Fluoride 217 Total dissolved solids 217 Turbidity
At tunnel inlet MGMIN006.99 103332	ASARCO Effectiveness monitoring			
At tunnel outlet MGMIN003.69 103333	ASARCO Effectiveness monitoring			
At channel outlet MGMIN002.65 103334	ASARCO Effectiveness monitoring			
At Highway 177 bridge MGMIN001.38 100472	ASARCO Effectiveness monitoring			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Only reviewed exceedances that occurred after extensive treatment initiated in 2001.			
Copper (dissolved)	8.0 µg/L at 58 mg/L hardness 6.7 µg/L at 48 mg/L hardness 9.1 µg/L at 66 mg/L hardness A&Ww acute	03/06/2003 – 12 µg/L 03/11/2004 – 17 µg/L 2/15/2005 – 20 µg/L	Remains Impaired – 3 exceedances during the last 3 years of monitoring. Copper exceedances occurred during high flows.
Dissolved oxygen	6.0 mg/L A&Ww	Too many to list here. Did not meet standards in 29 samples.	Impaired – Low dissolved oxygen in 29 of 218 samples (binomial). Cause of low dissolved oxygen is unknown, but may be due to natural conditions, such as groundwater upwelling.
Selenium	2.0 µg/L A&Ww chronic	35 sampling events – Too many to list here.	Remains Impaired – 35 exceedances during the assessment period. 28 were at or above 5 µg/L.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient *E. coli* and mercury to assess FBC and FC.		Lab detection limits for dissolved metals (cadmium, copper, lead, nickel, and silver) were higher than A&W chronic criteria in at least 7 samples.
MONITORING RECOMMENDATIONS		High Priority –Collect selenium and dissolved oxygen samples to support TMDL development. Collect copper samples to determine effectiveness of treatment. Use lower detection limits for dissolved metals. Collect missing core parameters to represent at least 3 seasons during an assessment period.	

MINNEHAHA CREEK From headwaters Hassayampa Creek 15070103 -- 029 12.7 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 03/05/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Near Hassayampa River MGMHA000.24 102955	ADEQ TMDL	1 total and dissolved metal sample: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, manganese, mercury, silver, and zinc 1 total metals only: Lead and nickel	1 Dissolved oxygen and pH	1 Total dissolved solids

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient monitoring events	Lab detection limits for selenium and dissolved metals (lead, mercury, nickel) were higher than A&Wc chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Collect additional core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for selenium and dissolved metals.	

PAINTED ROCKS RESERVOIR 15070101 – 1020A 100 Acres (This is a flood retention basin)	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	ADEQ	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgI -- Inconclusive AgL – Inconclusive	Category 3 Inconclusive		
	EPA	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT			
No Current Data			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

DATA GAPS AND MONITORING NEEDS	
DISCUSSION OF PESTICIDE IMPAIRMENT	Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.
MONITORING RECOMMENDATIONS	High Priority – Collect samples to support pesticide TMDL development.

See also Painted Rock Lake assessment in the Colorado River – Lower Gila Watershed

PAPAGO PARK PONDS 15060106B – 1030 24 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive PBC – Inconclusive FC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 12/20/2002 and 04/17/2003 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At dam MGPAP - A 101047	ADEQ Ambient	2 total and dissolved: Antimony, arsenic, barium, beryllium, boron, cadmium, copper, lead, mercury, manganese, nickel, selenium, silver, and zinc 2 total and 0-1 dissolved: Chromium	2 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	2 *E. coli* bacteria 2 Fluoride 2 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters.	Insufficient sampling events	Lab detection limit for dissolved mercury was higher than A&Ww chronic criterion.
MONITORING RECOMMENDATIONS		Low Priority –Collect missing core parameters to represent at least 3 seasons during an assessment period. Use a lower lab detection limit for dissolved mercury.	

POTTS CANYON From headwaters to Queen Creek 15050100 – 1856 10.6 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 08/10/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Queen Creek MGPTC000.01 103097	ADEQ TMDL	1 total and dissolved: Cadmium, chromium, copper, mercury, and zinc 1 total metals only: Arsenic, lead, manganese	1 samples: Dissolved oxygen, and pH	1 Fluoride 1 Total dissolved solids 1 Suspended sediment concentration

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Arsenic	50 µg/L FBC	08/10/2005 – 79 µg/L	Inconclusive – Only 1 sampling exceedance. (Binomial)
Copper (dissolved)	29.3 µg/L at >400 mg/L hardness A&Ww chronic	08/10/2005 – 49 µg/L	Inconclusive – Only 1 exceedance during the assessment period. Exceedance occurred during a summer storm and may not represent chronic (4-day average) conditions.
Lead	15 µg/L – FBC 100 µg/L – AgL	08/10/2005 – 170 µg/L	Inconclusive – Only 1 exceedance. (Binomial)
Mercury	0.6 µg/L FC	08/10/2005 – 1.1 µg/L	Inconclusive – Only 1 exceedance (Binomial)
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	08/10/2005 – 1859 mg/L	Inconclusive – Only 1 sampling date. Insufficient samples to assess, as need a minimum of 4 samples to calculate a geometric mean and compare to standard.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Arsenic, copper, lead, mercury, and suspended sediment	Insufficient core parameters	Insufficient sampling events	Lab detection limits for selenium and dissolved mercury were higher that A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect arsenic, copper, lead, mercury, and suspended sediment concentration samples due to exceedances. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Collect sufficient core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for selenium and dissolved mercury.	

QUEEN CREEK From headwaters to mining WWTP discharge 15050100 – 014A 8.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&We – Impaired PBC – Attaining AgL – Attaining	Category 5 Impaired	Copper	Copper on list since 2002. TMDL being developed.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 04/10/2003 – 08/10/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Headwaters MGQEN045.93 103091	ADEQ TMDL	11-26 total and dissolved: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, silver, thallium, and zinc 12 total and 4-5 dissolved: Barium, boron, selenium 26 total and 1 dissolved: Manganese	15-25 samples: Nitrite/nitrate, pH, dissolved oxygen	7 *E. coli* bacteria 13 Fluoride 15 Total dissolved solids 5 Suspended sediment concentration 13 Turbidity
Below Omya Pump Station Spring MGQEN044.42 103092	ADEQ TMDL and Resolution Cu Effectiveness			
Above Oak Flat MGQEN041.74 103093	ADEQ TMDL			
Below Oak Flat MGQEN041.34 103094	ADEQ TMDL			
At boulder hole MGQEN040.17 103463	Resolution Copper Effectiveness			
Below Superior water tank MGQEN039.75 103564	ADEQ TMDL			
Magma Ave and Queen Creek MGQEN038.73 103095	ADEQ TMDL			
Below NPDES Permit discharge MGQEN037.09 103096	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	18.0 µg/L at 76 mg/L hardness 8.7 µg/L at 35 mg/L hardness A&We acute	12/29/2004 – 44 µg/L 08/10/2005 – 49 µg/L	Remains impaired – 2 exceedances during the last 3 years of monitoring. Exceedances are occurring at normal flows (0.6 cfs).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	All core parameters were collected		
MONITORING RECOMMENDATIONS		High Priority –Collect copper samples to support TMDL development.	

QUEEN CREEK From mining WWTP discharge to Potts Canyon 15050100 – 014B 5.9 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Wedw – Impaired PBC – Inconclusive	Category 5 Impaired	Copper	Copper on 303(d) List since 2004. TMDL being developed

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 11/14/2002 – 08/30/2005 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
Above Boyce Thompson Arboretum MGQEN034.66 100624	ADEQ Ambient and TMDL	4-7 total and dissolved: Antimony, arsenic, beryllium cadmium, chromium, copper, and zinc 5-7 total and 0-2 dissolved: Boron, lead, manganese, and mercury 2 selenium	4-7 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, nitrite/nitrate, pH, dissolved oxygen	4 *E. coli* bacteria 6 Fluoride 4 Total dissolved solids 5 Suspended sediment concentration 4 Turbidity 2 Chlorine
State Park logger location MGQEN034.25 103544	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Chlorine	11 µg/L A&Wedw acute	03/31/2003 – 90 µg/L	Inconclusive – Only 1 exceedance in 2 samples.
Copper (dissolved)	49.6 µg/L at >400 mg/L hardness A&Wedw acute	11/14/2002 – 50 µg/L	Remains impaired – 1 exceedance during the last 3 years of monitoring.
Copper (dissolved)	29.3 µg/L at >400 mg/L hardness 29.3 µg/L at >400 mg/L hardness 23.5 µg/L at 310 mg/L hardness A&Wedw chronic	11/14/2002 – 50 µg/L 01/13/2003 – 37 µg/L 08/10/2005 – 33 µg/L	Remains impaired – 1 of these 3 exceedances (33 µg/L) was during an elevated flow (2.3 cfs), so may not represent chronic conditions (4 day exposure). Therefore, 2 exceedances in a 3-year period.
Dissolved oxygen	3.0 mg/L (daytime) A&Wedw	05/19/2003 – 1.6 mg/L	Inconclusive – Only 1 exceedance in 7 samples. (Binomial) (Note: sample was collected at 11 am.)
Selenium	2.0 µg/L A&Wedw chronic	11/14/2002 – 5.8 µg/L	Inconclusive – Only 1 exceedance in the last 3 years of monitoring. (See note below about lab detection limits)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Chlorine, dissolved oxygen, and selenium	Collected all core parameters		Lab detection limit for selenium and dissolved mercury were higher than A&Wedw chronic criteria in 1 or more samples.
MONITORING RECOMMENDATIONS		High Priority –Collect copper samples to support TMDL development. Collect chlorine, dissolved oxygen, and selenium samples due to exceedances. Use lower detection limit for selenium and dissolved mercury.	

QUEEN CREEK From Potts Canyon to Whitlow Canyon 15050100 – 014C 8.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 08/10/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Queens Station MGQEN030.06 103098	ADEQ TMDL	1 total and dissolved: Cadmium, chromium, copper, mercury, and zinc 1 total metals only: Arsenic, lead, manganese	1 samples: Dissolved oxygen, and pH	1 Fluoride 1 Total dissolved solids 1 Suspended sediment concentration

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Arsenic	50 µg/L FBC	08/10/2005 – 52 µg/L	Inconclusive – Only 1 sampling exceedance. (Binomial)
Copper (dissolved)	24.6 µg/L at 190 mg/L hardness A&Ww acute	08/10/2005 – 39 µg/L	Inconclusive – Only 1 exceedance in 3-year period.
Mercury	0.6 µg/L FC	08/10/2005 – 1.1 µg/L	Inconclusive – Only 1 exceedance. (Binomial)
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	08/10/2005 – 88 mg/L	Inconclusive – Although sample was marginally above the 80 mg/L criterion, there were insufficient samples to assess, as need a minimum of 4 samples to calculate a geometric mean and compare to standard. Also, the sample was collected during a monsoon rain event, so would not be included in the geometric mean calculation.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Arsenic, copper, mercury, and suspended sediment	Insufficient core parameters	Insufficient sampling events	Lab detection limits for selenium and dissolved mercury were higher that A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect arsenic, copper, mercury, and suspended sediment concentration samples due to exceedances. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Collect sufficient core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for selenium and dissolved mercury.	

SALT RIVER From Granite Reef Dam for 2 kilometers 15060106B-001A 1.6 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive DWS – Inconclusive AgI – Inconclusive AgL -- Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 07/19/2002 – 12/04/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Granite Reef diversion dam MGSLR041.57 102769	AGFD Ambient	3-4 total metals only: Arsenic, barium, cadmium, chromium, copper, lead, manganese, selenium, and zinc	5-7 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	6 Total dissolved solids 2 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Chromium	100 µg/L PBC	07/19/2002 – 184 µg/L	Inconclusive – Only 1 exceedance in 4 samples. (Binomial)
Lead	15 µg/L PBC	07/19/2002 – 234 µg/L 07/31/2002 – 44 µg/L	Inconclusive – 2 exceedances in 4 samples. (Binomial requires a minimum of 5 exceedances and 20 samples to assess as impaired.)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Chromium and lead	Insufficient dissolved metals (cadmium, copper, and zinc), E. coli bacteria, mercury, fluoride, and boron to assess A&Ww, FBC, FC, DWS, AgI.		
MONITORING RECOMMENDATIONS		Medium Priority – Collect chromium and lead due to exceedances. Collect core parameters to represent at least 3 seasons during an assessment period.	

SALT RIVER From 2 kilometers below Granite Reef Dam to Interstate 10 bridge 15060106B-001B 19 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/12/2005 – 01/21/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Priest Drive USGS #09512165 MGSLR022.76 101493	AGFD Ambient	2 total metals only: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, and zinc 2 total metals only: Boron, manganese, and selenium	2 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	2 *E. coli* bacteria 2 Fluoride 2 Total dissolved solids 2 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events.	
MONITORING RECOMMENDATIONS		Low Priority – Collect sufficient core parameters to represent at least 3 seasons during an assessment period.	

SALT RIVER From Interstate 10 bridge to 23rd Avenue WWTP discharge 15050106B-001C 7.9 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 07/19/2002 – 12/04/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At 19th Avenue bridge MCSLR013.36 102767	AGFD Ambient		1 sample: Ammonia, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	1 Total dissolved solids

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	
MONITORING RECOMMENDATIONS		Low Priority – Collect core parameters to represent at least 3 seasons during an assessment period.	

SALT RIVER From 23rd Avenue WWTP discharge to Gila River 15060106B-001D 14.1 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	ADEQ	A&Wedw – Attaining PBC – Attaining FC – Inconclusive AgI – Attaining AgL – Attaining	Category 2 Attaining Some Uses		
	EPA	FC – Impaired (Affected use only)	Category 5 Impaired	DDT, toxaphene, and chlordane in fish tissue.	DDT, toxaphene, and chlordane were re-listed by EPA in 2002.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006 impaired waters list. Such listings do not satisfy requirements established in Arizona's Impaired Water Identification Rule; therefore, they are not included in the list of Arizona's impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 11/20/2001 – 08/09/2002 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Tres Rios discharge MGSLR003.33 101265	ADEQ Ambient	4 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, mercury, and zinc 4 total metals only: Boron, lead, and manganese	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Turbidity 3 Chlorine

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			Fish consumption advisory due to DDT, toxaphene, and chlordane in fish tissue

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Pesticides in fish tissue	Collected all core parameters		Lab detection limit for selenium was higher than A&W chronic criteria.
DISCUSSION OF PESTICIDE IMPAIRMENT		Evidence of potential pesticide impairment: • A risk assessment completed in 2006 indicates that the fish consumption advisory for these pesticides should remain in effect. • A fish consumption advisory issued in 1991 remains in effect.	
MONITORING RECOMMENDATIONS		High Priority – Collect pesticides data to support TMDL development. Use a lower detection limit for selenium.	

SKUNK CREEK From headwaters to Agua Fria River 15070102 -- 003 30.4 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 11/29/2002 – 03/16/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At 79th Avenue, north bank MGSKU001.43 101521	USGS Special study	3 total metals only: Cadmium, copper, lead, mercury, and zinc	3 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Lead	15 µg/L FBC	01/08/2003 – 18 µg/L	Inconclusive – 1 exceedance in 3 samples. (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead	Insufficient dissolved metals (cadmium, copper, and zinc), *E. coli* bacteria, and mercury to assess A&Ww, FBC, and FC		
MONITORING RECOMMENDATIONS		Medium Priority – Collect additional lead data due to the exceedance. Collect core parameters to represent at least 3 seasons during an assessment period.	

SYCAMORE CREEK From Tank Canyon to Agua Fria River 15070102 – 024B 17.6 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 12/21/2001 – 09/20/2002		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Sycamore Ranger Station MGSYD009.13 100704	ADEQ Ambient	4 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, copper, and zinc 4 total and 0-2 dissolved: Boron, chromium, lead, manganese, mercury	4 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen, dissolved oxygen, pH	3 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limit for selenium was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use a lower lab detection limit for selenium.	

TEMPE TOWN LAKE 15060106B– 1588 220 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Attaining	Category 2 Attaining Some Uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/27/2001 – 07/22/2004 Weekly sampling from 01/04/2001 – 03/27/2006 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At downstream dam MGTTL - A 101316	ADEQ and City of Tempe Ambient	72 total and 0-1 dissolved: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, and zinc	78 samples: Ammonia, total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen. 280 Dissolved oxygen 1332 pH	352 *E. coli* bacteria 6 Fluoride 11 Total dissolved solids 1317 Turbidity
Near upstream dam MGTTL - B 101315	ADEQ and city of Tempe Ambient			
Mid lake MGTTL - MID 102452	ADEQ and AGFD Ambient			
Mid depth MGTTL – MDEP (not in ADEQ's database)	City of Tempe Ambient (metals)			
Marina MCTTL – MAR (not in ADEQ's database)	City of Tempe Ambient (bacteria and metals)			
50 feet off shore MCTTL – 50 (not in ADEQ's database)	City of Tempe Ambient (field)			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	>6.0 mg/L A&Ww	After treatment in 2002: 07/15/2004 – 5.4 mg/L 07/22/2004 – 4.1 mg/L 07/29/2004 – 5.1 mg/L 08/05/2004 – 5.1 mg/L 10/22/2004 – 5.4 mg/L 08/29/2005 – 5.7 mg/L	Attaining – 6 low dissolved oxygen samples out of 280 samples (binomial). Dissolved oxygen was collected at only one of the City of Tempe sites (50 feet off shore). It was also collected when ADEQ and AGFD monitored. (Copper sulfate has been added to the lake since 2002 to control algal blooms.)
E. coli bacteria	235 CFU/100 ml FBC	02/14/2003 – 1700 CFU/100 ml 01/25/2005 – 240 CFU/100 ml 07/31/2003 – 900 CFU/100 ml 09/11/2003 – 240 CFU/100 ml	Inconclusive – Although there were four exceedances of standards during the last 3 years of monitoring, weight-of-evidence does not support listing the lake as impaired. See discussion below.
pH (high	<9.0 SU A&Ww, FBC	After treatment in 2002: 01/09/2006 – 9.3 SU (2 sites) 02/07/2006 – 9.3 SU	Attaining – Only 2 exceedances in 890 samples after treatment was begun in 2002. (Copper sulfate has been added to the lake since 2002 to control algal blooms.)
Mercury	0.6 µg/L FC	08/02/2001 – 0.7 µg/L 12/06/2001 – 0.7 µg/L 06/06/2002 – 0.7 µg/L	Attaining – 3 of 72 samples exceeded the criterion. (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient dissolved metals to assess A&W (cadmium, copper, and zinc)		Lab detection limit for dissolved mercury was higher than A&Ww chronic criteria.
DISCUSSION OF *E. COLI* BACTERIA EXCEEDANCES		Although four exceedances occurred during the assessment period, ADEQ does not support listing this lake as "impaired" based on the following: 1. The exceedance on 2/14/2003 (1700 CFU) occurred when raging flood flows topped the upstream dam and entered the lake. The USGS gage on Indian Bend Wash recorded mean daily flow of 625 cfs (normal flow is 0 cfs). Such flood flows are naturally contaminated by bacteria. 2. The exceedances on 9/11/2003 and 1/25/2005 were both at 240 CFU. Both of these are below the 300 CFU screening value that must be exceeded for listing decisions. 3. Two of the exceedances (2/14/2003 and 1/25/2005) occurred during our coldest months when even incidental swimming while sailing is uncommon. 4. ADEQ has proposed changing its assessment methods for bacteria, so that the binomial method would be applied. Out of 352 samples, only 4 exceedances have occurred. 5. The City of Tempe is using the bacteria to determine when to restrict swimming. It monitors the lake weekly during the summer when sailing is more frequent and before any swimming events.	
MONITORING RECOMMENDATIONS		Medium Priority – Continue to collect *E. coli* bacteria samples. Collect missing core parameters to represent at least 3 seasons during an assessment period. Use a lower lab detection limit for dissolved mercury.	

TURKEY CREEK From headwaters to unnamed tributary at 341928/1122128 15070102 – 036A 9.1 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Inconclusive FC – Inconclusive AgI – Inconclusive AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/14/2000 – 12/19/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Forest Road 261 MGTRK030.07 101523	ADEQ TMDL	3-9 total and dissolved metals: Arsenic, beryllium, cadmium, chromium, copper, lead, and zinc 3 total and 0-2 dissolved: Boron 1-2 total and 0-2 dissolved: Antimony, manganese, mercury	7-9 samples: Dissolved oxygen and pH. 1 sample: total nitrogen, nitrite/nitrate, total phosphorus, total Kjeldahl nitrogen	1 Suspended sediment concentration
At Forest Road 706 MCTRK029.80 101524	ADEQ TMDL			
At Goodwin, AZ MGTRK024.35 101626	ADEQ TMDL			
At Senator Weir MGTRK021.52 102519	ADEQ TMDL			
Upstream of 5000 MSL MGTRK021.44 102512	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	12/19/2003 – 6.1 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. Flow 0.003 cfs.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient mercury, *E. coli*, and manganese to assess FC, FBC, and AgI.		Lab detection limits for selenium and dissolved metals (cadmium, copper, lead, mercury) were higher than A&Ww chronic criteria in at least 2 samples.
MONITORING RECOMMENDATIONS		Low Priority – Collect core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for selenium and dissolved metals.	

TURKEY CREEK From unnamed tributary at 341928/1122128 to Poland Creek 15070102 – 036B 21.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired FBC – Impaired FC – Inconclusive AgI – Attaining AgL – Impaired	Category 5 Impaired	Copper and lead	TMDL out for public review and comment. When approved by EPA, Water will be moved to Category 4. Delist cadmium and zinc.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 02/08/2000 – 02/23/2004 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
At trail 202 MGTRK016.12 102517	ADEQ TMDL	17-46 total and dissolved metals: Arsenic, boron, cadmium, chromium, copper, lead, manganese, and zinc 37 total and 5 dissolved: Mercury 3-6 total metals only: Beryllium 1 total and dissolved: Antimony	20 Dissolved oxygen 46 pH 17 Total phosphorus 10 Nitrate/nitrite 1 Total nitrogen and total Kjeldahl nitrogen	4 Suspended sediment concentration 9 Cyanide
At corral MCTRK015.90 101538	ADEQ TMDL			
Upstream of Bear Creek MGTRK015.47 102511	ADEQ TMDL			
North of Cleator, at Forest Road 93 MGTRK007.28 101083	ADEQ TMDL			
Crown King Road bridge MGTRK004.42 101627	ADEQ TMDL			
Below Golden Belt Mine MGTRK004.33 102518	ADEQ TMDL			
Below Golden Turkey Mine MGTRK003.89 102510	ADEQ TMDL			
At old bend below Golden Belt and Golden Turkey MGTRK003.71 101082	ADEQ TMDL			
At Silver Cord Mine MGTRK001.53 100587	ADEQ TMDL			
At Poland Creek MGTRK000.09 102513	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Arsenic	50 µg/L – FBC 200 µg/L – AgL 1450 µg/L – FC 2000 µg/L -- AgI	03/17/2003 – 2800 µg/L 08/14/2003 – 98 µg/L	Attaining – Exceeded the criteria in 1 or 2 of 17 events. (Binomial)
Cadmium	50 µg/L – AgI, AgL 84 µg/L – FC	09/09/2003 – 170 µg/L	Attaining – Only 1 exceedance in 46 samples. (Binomial)

Chromium	100 µg/L FBC	08/14/2003 – 147 µg/L	Attaining – 1 exceedance in 17 sampling events (1 in 30 samples). (Binomial)
Copper	500 µg/L – AgL	08/15/2003 – 569 µg/L	Attaining – 1 exceedance in 19 sampling events (1 in 46 samples) (Binomial)
Copper (dissolved)	17.2 µg/L at 130 mg/L hardness 49.6 µg/L at >400 mg/L hardness A&Ww acute	08/15/2003 – 25 µg/L	Remains impaired – 1 exceedances in the last 3 years of monitoring
Dissolved oxygen	6.0 mg/L A&Ww	12/19/2003 – 4.9 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. (Flow 0.001 cfs.)
Lead	14 µg/L – FBC 100 µg/L – AgL	09/11/2002 – 103 µg/L 02/26/2003 – 564 µg/L 03/17/2003 – 4,800 µg/L 08/14/2003 – 1235 µg/L 08/21/2003 – 38 µg/L	Remains impaired – Criterion 14 µg/L was exceeded in 5 of 20 sampling events (15 of 46 samples). Concentrations were greater than AgL criterion (100 µg/L) in 4 of 20 sampling events. (Binomial)
Lead (dissolved)	61.8 µg/L at >400 mg/L hardness A&Ww acute	08/21/2003 – 110 µg/L	Remains impaired – 1 exceedance in last 3 years.
Mercury	0.6 µg/L FC	03/17/2003 – 0.76 µg/L 08/15/2003 – 0.9 µg/L	Inconclusive – 2 of 4 sampling events exceeded the criterion. (7 of 18 samples) (Binomial requires a minimum of 5 exceedances and 20 samples to assess as impaired.)
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	13/17/2003 – 490 mg/L	Inconclusive – Exceeded criterion during only sampling event monitored for this parameters. This sample was collected during storm flows, so could not be used in calculating the geometric mean. Insufficient data to calculate a geometric mean.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Mercury, SSC	Need *E. coli* bacteria to assess FBC.		Lab detection limits for dissolved metals (cadmium, copper, lead, mercury, zinc) were higher than A&Ww chronic criteria in at least 10 samples.
DELIST CADMIUM AND ZINC		No exceedances of total or dissolved cadmium criteria 45 sampling events. No exceedances in total or dissolved zinc in 45 sampling events. Samples were collected at multiple sites and represent various conditions of flow, including runoff events.	
MONITORING RECOMMENDATIONS		Medium Priority – Collect arsenic, mercury and SSC due to exceedances. Collect metals data to determine effectiveness of TMDL implementation strategies, once implemented. Use lower lab detection limits for dissolved metals. Collect arsenic and suspended sediment samples due to the exceedances. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Collect missing core parameters to represent at least 3 seasons. During the assessment period.	

UNNAMED TRIBUTARY TO LYNX CREEK From headwaters to Lynx Creek 15070102 -- 124 1.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 05/11/2001 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Sheldon waste rock MGULN000.75 103428	Weston Inc Special inv for EPA	6 dissolved metal sample at 6 sites: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, thallium, and zinc (All sites sampled once on the same date.)	None	6 Fluoride 6 Total dissolved solids
At Sheldon waste rock MGULN000.70 103429	Weston Inc Special inv for EPA			
Below Sheldon waste rock MGULN000.64 103430	Weston Inc Special inv for EPA			
Upstream of Blue John trib. MGULN000.23 103419	Weston Inc Special inv for EPA			
At Blue John tributary MGULN000.16 103420	Weston Inc Special inv for EPA			
Downstream of Blue John trib MGULN000.11 103421	Weston Inc Special inv for EPA			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Cadmium (dissolved)	19.12 µg/L at >400 mg/L hardness A&Wc acute	05/11/2001 – 135 µg/L	Inconclusive – Only 1 sampling event with an exceedance (5 sites). High magnitude noted.
Cadmium	84 µg/L FC	05/11/2001 – 135 µg/L	Inconclusive – Only 1 sampling event with an exceedance (2 sites). (Binomial)
Copper (dissolved)	49.6 µg/L at >400 mg/L hardness A&Wc acute	05/11/2001 – 22,200 µg/L	Inconclusive – Only 1 sampling event with an exceedance (5 sites). High magnitude noted.
Copper	1300 µg/L FBC	05/11/2001 – 22,200 µg/L (dissolved portion)	Inconclusive – Only 1 sampling event with an exceedance (5 sites). (Binomial)
Zinc (dissolved)	379.3 µg/L at >400 mg/L hardness A&Wc acute	05/11/2001 – 8730 µg/L	Inconclusive – Only 1 sampling event with an exceedance (5 sites). High magnitude noted.

Pollutant: Assume "total" concentration, unless shown as dissolved.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Cadmium, copper, and lead	Insufficient dissolved oxygen and *E. coli* bacteria to assess A&Wc and FBC.		Lab detection limits for selenium and dissolved mercury were higher than A&Wc chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect cadmium, copper, and lead samples due to the exceedances. Use lower lab detection limits for selenium and dissolved mercury. Collect missing core parameters to represent at least 3 seasons.	